White Paper

Corporate Mobility as a Service “CMaaS”

Co-authors

MaaS ALLIANCE

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Corporate Mobility as a Service “CMaaS” White Paper

1 Introduction

Purpose of this paper

The MaaS Alliance is always looking to adjust and improve mobility for all users. The corporate target group is a very important group for employers and employees, for public and private sectors, and for social Impact, to align on facilitating the right service levels to remain a top-ranking employer and manage the output on cost and Impact.
The purpose of the White Paper on CMaaS is to provide corporations a guideline on how to Implement and manage mobility for internal and external use.
The White Paper on CMaaS is the deliverable of the MaaS Alliance Working Group Governance & Business Models which is a joint effort of WG members with a core drafting team and the reviewers/ contributors during the review period, listed below. The paper was shared with all MaaS Alliance members for the revision and final approval.

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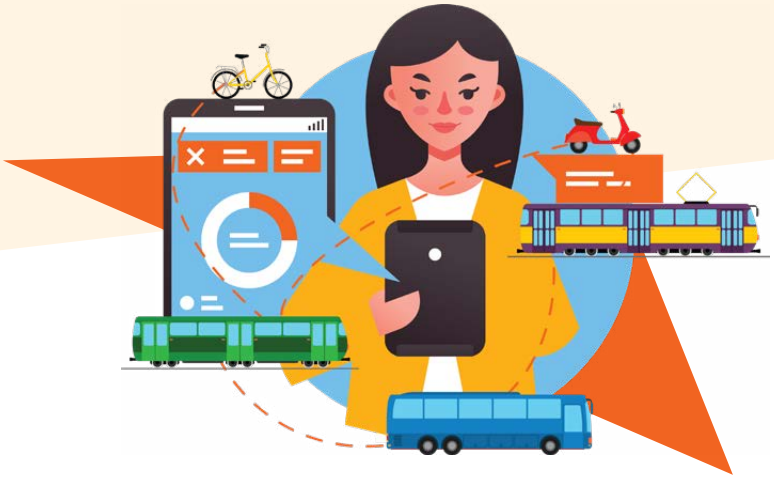
2 Executive summary



The White Paper on Corporate Mobility as a Service “CMaaS” highlights its transformative potential for reshaping corporate mobility into a more sustainable, efficient, and employee-focused paradigm. Corporate mobility has evolved significantly, moving from traditional benefits like company-provided shuttles to modern, dynamic solutions such as mobility budgets and comprehensive app-based platforms. This transformation mirrors the growing demand for flexibility and sustainability in employee commutes, driven by technological advancements and environmental consciousness.

Globally, markets have embraced CMaaS with innovative initiatives. In Europe, legislative support in countries like Italy, Belgium, and France has catalysed adoption, fostering programs aimed at reducing urban congestion and promoting eco-friendly transportation. Germany has demonstrated success with mobility budgets and integrated platforms, while cities like Turin have piloted CMaaS initiatives under the “MaaS for Italy” framework, showcasing the benefits of such systems.

The motivations for adopting CMaaS are compelling. For employees, these solutions enhance commuting experiences, offering multimodal travel options and unparalleled flexibility. From the corporate perspective, CMaaS supports environmental strategies by reducing CO_2 emissions and private vehicle reliance. Additionally, companies benefit from cost savings through optimized resource allocation and reduced infrastructure needs, such as parking spaces. By adopting CMaaS, organizations not only elevate their public image but also ensure compliance with stringent sustainability regulations such as the EU’s Corporate Sustainability Reporting Directive (CSRD).

Despite its benefits, implementing CMaaS is not without challenges. Legal and regulatory hurdles, such as data privacy and taxation issues, can complicate adoption. Technical integration with existing corporate systems requires robust investment, and employee adoption hinges on effective communication and incentives.

Notable use cases underscore CMaaS potential. Siemens’ Travel Planner integrates diverse transport modes to enable sustainable and cost-effective business travel. Similarly, Deutsche Telekom’s proprietary mobility platform exemplifies scalable solutions that align with broader corporate sustainability goals.

3 Foreword

Roelof Hellemans
Secretary General
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Many challenges are ahead! But we need to focus on solutions that we can deploy immediately and that have the potential to solve these challenges.

This kind of thinking is well aligned within the MaaS Alliance. Through the discussions we have with our Members and Partners, we know and learn where we are heading for: a sustainable future for the upcoming generations. It is the focus on many small activities that is paving the road towards our goal.

The MaaS Alliance already created Papers on CMaaS: Accelerating MaaS Growth: Corporate Mobility and MaaS Scheme Agreement Template. We had to align these papers to the current developments and possibilities.

We are pleased that, with the input of our Members and Partners, with the help of Mobility Experts and Academics and Universities, we are able to "Update" the position on CMaaS. We set the guidelines on how to implement and orchestrate CMaaS from a Company and Employer perspective.

Our main lesson learned - not just during the creation of this position paper, but from all the activities we do-, is to collaborate, work together, open up to learn from each other and, if you want to improve, start with yourself by listening and working together.

This will set the base for improvements.

- We want to invite everybody to connect and learn from each other to deploy
- We want to give trust to everybody that by working together we can reach our goals.

There are mainly two ways of operating CMaaS; first, it is provided and operated by the beneficiary company, and second, the beneficiary company pays for different mobility services in collaboration with a third party provider.[1]

[1] Vaddadi, B., Zhao, X., Susilo, Y., & Pernestål, A. (2020). Measuring system-level impacts of corporate mobility as a service "CMaaS" based on empirical evidence. Sustainability, 12(17), 7051.

4 Examples of current CMaaS market implementations

In the past, some companies provided tailored-route bus services to employees from the company-provided accommodations to offices/factories for a better commute as part of their benefit packages. Through the years, this type of corporate benefits has evolved from shuttle bus services, to mileage allowances plus a parking space package, to a carpool/car sharing service, and many have transformed into a mobility budget for employees to be used on the existing public transport services. Today, sustainable commute/travel offers for employees are known as Corporate Mobility as a Service "CMaaS". Large companies have started to offer a CMaaS to enhance the corporate image and benefit from tax incentives linked to improved ESG score. This is especially relevant for Scope 3 emissions, which include CO_2 emissions from employees' commute and business trips.

On top, CMaaS applications entail other transportation services for employees' trips.

Recent services that have been applied by corporate companies, for example, cover mobile ticketing to airports or Fly-Drive packages that also include rental car at the destination.

The Mobility Budget is one of today's trends to encourage sustainable commutes and to replace company cars. The concept is for employees to receive a monthly mobility budget which allows them to spend it freely on the transport mode of their choice that could be bus, train, bike, taxi, rental car, a share-ride, etc. This type of offering seems to be attractive to those who are looking for flexibility. A German software group SAP is one of the companies who offers a mobility budget as a replacement for company cars.[2] Deutsche Telekom, who has already operated their own corporate car sharing and micro-mobility fleets, also provides various options to their employees, whether they would like to use a company EV car, a BahnCard, or to convert the budget into a time-equivalent for sabbatical leave. In Belgium, a number of legislative adjustments, which took effect from 1 January 2024, have made the mobility budget becoming more attractive.[3] The legislation allows employees who have been offered a company car for at least 36 months to switch to a more eco-friendly car, or to get a mobility budget to be used on public or shared mobility and can be used to pay rent or mortgage loans and receive various tax exemptions. At the end of the year, if there is still some budget left, they can get paid in a one-time cash payment.[4] A study by PwC has shown that 31% of companies in Belgium have implemented the federal mobility budget.[5] However, a mobility budget scheme that works for one country might not work well for another, due to different legislations and incentives as well as cultural perceptions.

Besides the mobility budget, the second significant application is the Corporate Mobility application. Corporate companies are conscious that business travel is a larger cost bloc and mostly represents non-productivity time of the employees. Services helping to reduce both are highly welcomed. Shifting the last mile after a flight from the typical taxi ride to public transport is often the unknown alternative. Also company agreements with preferred rental car or car sharing providers can make life easier and reduce travel costs. Linking the CMaaS backend platform with the ERP handling the travel cost reduces the manual forwarding of the tickets and its verification process (smart taxation). Additionally, from an employer point of view, these services have a positive impact on the employee's productive time, and the seamless travelling leads to a higher user satisfaction.

[2] NAVIT (2024) How does the mobility budget work? Blog Post
[3] KPMG (2023) The mobility budget - Finally a formula for a more simple calculation. Blog post
[4] Comp & Ben (2023) Mobility budget - good alternative for a company car. Blog post
[5] PwC (2024) PwC survey employers' mobility policies in Belgium

Overview of Italian market

Before diving into details of CMaaS in Italy, let's consider some context information. By definition, CMaaS matters to companies. Both in Italy and the European Union, there are plenty of Micro, Small and Medium Enterprises (SMEs)[6].

As defined by European Commission:

Micro businesses
≥ 10 employees
≥ € 2 million of turnover

Small businesses
≥ 50 employees
≥ € 10 million of turnover

Medium businesses
≥ 250 employees
≥ € 50 million of turnover

Big businesses
≤ 250 employees
≤ € 50 million of turnover

Below is shown a table to compare the Italian context with the EU one.

	Staff headcount	Turnover	In Italy[7]		In EU[8]	
			Companies	Employees	Companies	Employees
Micro	< 10	< € 2 mio	79%	28%	94,1%	30,1%
Small	< 50	< € 10 mio	18,5%	26%	4,9%	18,9%
Medium	< 250	< € 50 mio	2,2%	17%	0,8%	15,4%
Big	> 250	> € 50 mio	0,3%	29%	0,2%	35,6%

In response to increasing concerns about urban congestion and environmental sustainability, **a new regulation was introduced in Italy in May 2020**[9] mandating the appointment of a Mobility Manager for both private companies and public institutions with more than 100 employees, located in urban areas with populations exceeding 50,000 inhabitants.

The role of the Mobility Manager is pivotal in promoting sustainable transportation solutions and enhancing the efficiency of employee commutes. Among the key responsibilities of this position, there is the development of the Home-Work Travel Plan (HWTP).

This strategic plan aims to reduce reliance on individual private vehicles, thereby decreasing traffic congestion, lowering emissions, and encouraging the use of alternative, eco-friendly transportation modes such as, public transit, cycling, carpooling, or shared mobility services.

By implementing a well-structured HWTP, organisations can not only contribute to reducing their environmental footprint but also improve the overall well-being and productivity of their workforce.

Currently, the **CMaaS landscape in Italy** features several key operators that have been actively in

[6] SME Definition, European Commission
[7] ISTAT, Italian Institute of Statistics (2023), Censimento permanente delle imprese 2023: primi risultati.
[8] European Commission (2024), Key figures on European businesses - 2024 Edition.
[9] Mobility management e Linee guida per la predisposizione dei PSCL – Piani degli Spostamenti Casa-Lavoro

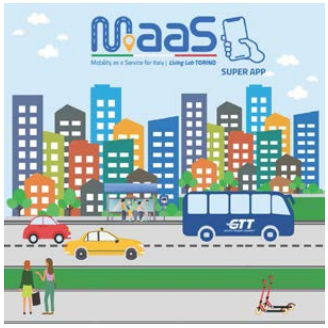
the market. Among the most recognized there are FreeNow (with FreeNow for Business), Uber (with Uber for Business), Telepass (with TBusiness), WeTaxi, Urbi, and MooneyGo.

These providers have introduced a variety of mobility solutions tailored to meet the needs of corporate clients, focusing on seamless, integrated travel experiences that combine different modes of transportation.

Notably, WeTaxi, Urbi, and MooneyGo have also joined the MaaS ToMove initiative, a flagship project led by the City of Turin as part of the national "MaaS for Italy" program. MaaS ToMove stands out due to its innovative approach, which includes testing two distinct use cases: the Consumer MaaS, aimed at general urban users, and the CMaaS, specifically designed to address the unique needs of companies and their employees.

CMaaS pilot in Turin

In Turin, the city conducted **"MaaS ToMove"**[10] - a pilot project within the **MaaSforItaly initiative**,[11] testing two distinct use cases: **Consumer MaaS and CMaaS.**



MaaS ToMove a mobility pilot in Turin for employees trips home-work, work-work, or leisure.

Regarding the CMaaS use case, four companies were selected by the municipality of Turin and 5T to participate in the trial. These organisations, equipped with dedicated Mobility Managers, offered their employees access to MaaS services, focusing primarily on home-to-work and work-to-work trips, but also extending to personal and leisure travel.

The goal was to provide Mobility Managers with tools to promote sustainable and alternative transportation options, while also enabling employees to benefit from economic incentives for individual mobility.

The pilot introduced a MaaS platform where employees categorised trips as home-work, work-work, or leisure. This categorization facilitated cost allocation and enabled efficient management by employers. Home-work and leisure trips were paid by employees, who could access incentives from the MaaS for Italy project or, in some cases, their employers too. Work-related trips, on the other hand, were covered by the companies, with costs managed through the MaaS Operator and reimbursement processes streamlined.

Incentive Structure

The pilot included a range of incentives to encourage adoption:

- **Citizen incentives,** funded by the project, included:

  - a €10 welcome bonus,
  - 20% cashback,
  - and up to 50% fare coverage.

- **Corporate-specific incentives,** funded by MaaS Operators, offered additional perks such as:

  - an extra 5% cashback
  - or €1 rewards for trying new modes of transportation.

[10] MaaS ToMove
[11] Mobility as a Service for Italy

For the MaaS Operator, the initiative was cost-effective compared to traditional customer acquisition strategies.

Feedback from Companies and Employees

Companies participating in the pilot had diverse responses:

- Organisations with existing mobility initiatives (e.g., carpooling, Bike2Work programs, public transit pass reimbursements) saw CMaaS as an opportunity to consolidate efforts into a single platform, benefiting both work-related and leisure travel. Universities and financial institutions showed enthusiasm, with plans to expand the initiative across branches. However, manufacturing firms displayed less interest, perhaps due to operational differences.

Employee feedback revealed both enthusiasm and areas for improvement:

- Many appreciated the integration of multiple mobility options but expressed concerns about costs and called for more discounts and offers.
- There was significant interest in public transit passes, which were not yet purchasable through the MaaS platform.
- Additional suggestions included integrating walking, personal bikes, and bundled mobility services for convenience.

This pilot highlighted the potential of CMaaS to enhance sustainability and employee mobility while emphasizing the need for more accessible and flexible services to maximize user satisfaction and adoption.

Overview of French market

The Mobility as a Service “CMaaS” market in France is rapidly evolving (Moovizy - Saint-Etienne Métropole, Mobility Account of Mulhouse (Mulhouse Metropolitan Area), MyAstuce (Métropole Rouen Normandie, ...), driven by several key factors such as increasing urbanisation, environmental concerns, and the demand for more efficient and integrated mobility solutions.

Key Trends/Market Dynamics

- **Rise of Integrated Platforms:** In France, there’s a growing trend towards integrating multiple modes of transport such as public transit, ride-sharing, vehicle rental, bike-sharing, and even electric vehicles (EVs) into single platforms.

- **Environmental Concerns:** Environmental sustainability is a major driver in the MaaS market in France, with a strong push towards incorporating electric vehicles and other green transportation options. This aligns with broader European Union goals for reducing carbon emissions and promoting sustainable urban mobility.

- **Corporate Adoption:** French companies are increasingly adopting MaaS solutions to optimize employee commutes, reduce carbon footprints, and manage transportation costs more effectively. The corporate sector’s demand is pushing the development of tailored solutions that offer more than just transportation but also data analytics, navigation, and ticketing solutions.

The French CMaaS market is expected to grow significantly, with increased investment in smart cities and urban mobility projects. As the market matures, we can expect further innovations in service offerings, especially in integrating emerging technologies like autonomous vehicles and advanced data analytics to enhance user experience and operational efficiency.

Initiatives/Actors

There are different players on the French market innovating (sometimes in collaboration with other players) in the field of CMaaS market.

- **SNCF, Transdev, RATP Smart Systems**
- **Renault through its subsidiary Mobilize**
- **Instant System, Cityway, Flowbird**
- **Skipr, Witrafi**

The initiatives ongoing in France reflect a growing trend in France to integrate different modes of transport to offer sustainable and efficient mobility solutions to companies, thus promoting the reduction of the carbon footprint and the improvement of the quality of life of employees.

Cityway, the MaaS innovation platform in France.

CMaaS applied in Germany

Use case 1: Siemens Travel Planner

Since the launch of the Siemens Travel Planner in 2022 at Siemens Mobility Germany, over 15,000 employees have been exploring optimal travel connections from door to door. This Travel Planner allows employees to find the most sustainable, fastest, and cost-effective routes for their business trips, using the best modes of transport available. The app consolidates various mobility services, offering a comprehensive range of route options. Recognizing that each journey is unique, the app allows users to tailor their business trips to meet specific needs. It offers configuration options for criteria such as trip duration, departure and arrival times, helping users find routes that align with their personal preferences, including sustainability considerations.

Built on a smart mobility platform, the Siemens Travel Planner simplifies business travel planning with a strong emphasis on sustainability. It is powered by a Mobility-as-a-Service (MaaS) backend platform, integrating data from global flights, Europe-wide train connections, local public transportation in the DACH region, as well as cab and rental car services. This app efficiently manages entire travel planning from door to door, saving both time and costs. Its user-friendly access and seamless connection planning make sustainable transport options, like trains and public transport, more appealing. The Travel Planner supports the company's 'smarter travel' sustainability strategy, marking a significant step towards reducing carbon footprint.

Use case 2: Deutsche Telekom

Deutsche Telekom plans to become carbon neutral by 2040 at the latest. The subsidiary Telekom MobilitySolutions, which is responsible for managing one of the largest corporate fleets in Europe and is a full-service provider for employee mobility, is relying on a wide variety of measures such as shared service vehicles in conjunction with electric and micromobility or benefit budgets for employees. The goals of the mobility strategy are clearly outlined: Ensuring corporate mobility, sustainability, customer satisfaction and efficiency.

"goodride", a new, proprietary mobility platform covering everything from information and planning to ticketing and payment to the trip itself, targets the daily mobility needs. With the all-in-one app developed by Hacon, passengers can now easily plan and execute their commutes and travels. Together with Stadtwerke Bonn (SWB), Verkehrsverbund Rhein-Sieg (VRS) and Kölner Verkehrs-Betriebe Aktiengesellschaft (KVB), Telekom is laying the foundation for an innovative MaaS platform with goodride and making a significant contribution to sustainable, digitally connected mobility.

Powered by a Mobility-as-a-Service (MaaS) Siemens Travel Planner simplifies business travel planning with a strong emphasis on sustainability.

Goodride mobility platform by Deutsche Telekom covering trips from information and planning to ticketing and payment.

UseCase 3: NAH.SH integrated model in Germany, State of Schleswig-Holstein

The federal grant project SMILE24 adopts a comprehensive approach to implementing Mobility-as-a-Service (MaaS) in the rural regions of the counties of Schleswig-Flensburg and Rendsburg-Eckernförde in the German state of Schleswig-Holstein. Its goal is to establish a digital, intermodal mobility system that integrates various public and private transportation options, offering passengers seamless travel chains through a unified platform. Central to this vision is the development of the NAH.SH app, which serves as the hub for booking and accessing a wide range of mobility services. MaaS redefines mobility by moving beyond individual modes of transportation.

SMILE24 enables the integration of buses, ride-pooling services, car-sharing, and bike-sharing into a unified digital infrastructure. The app allows for comprehensive travel planning and provides real-time updates on intermodal options. In the future, it will facilitate full booking and payment functionality, achieving “deep integration” and setting a new standard compared to existing regional mobility initiatives.

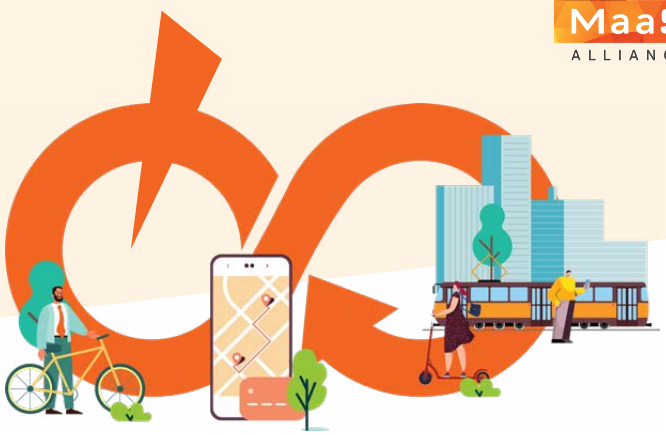
A practical example illustrates the system’s capabilities: A passenger can use the app to book an electric NAHSHUTTLE ride to a bus stop, connect to an express bus, and complete the trip using a car-sharing service. The app ensures these steps are seamlessly coordinated to avoid unnecessary waiting times. The interoperability of mobility services and the ability to bundle them under a unified fare, such as through the Germany Ticket, makes this offering particularly attractive and accessible.

SMILE24 exemplifies how MaaS solutions can promote sustainable mobility. All vehicles used are electrically powered and charged with 100% renewable energy.

Furthermore, the project guarantees inclusive access through barrier-free fleets and infrastructure, ensuring that all passengers, regardless of individual needs or technical expertise, can benefit from the MaaS integration. By embracing MaaS, SMILE24 not only simplifies access to mobility but also contributes significantly to environmental and resource conservation. It positions Schleswig-Holstein as a pioneer in the digitalization and integration of public transport, offering a forward-looking blueprint for future mobility solutions.

Project SMILE24 inplemented in in the rural regions of the counties of Schleswig-Flensburg and Rendsburg-Eckernförde in the German state of Schleswig-Holstein.

5 External trends and drivers



In this chapter we dive into the major external trends and drivers for companies for adopting CMaaS.

They can be summed up in:

- Sustainability and environmental regulations
- Urbanisation and traffic congestions
- Technological advancements
- Changing consumer preferences
- Governance initiatives and support

Sustainability and environmental regulations

Sustainability and environmental regulations are significant drivers influencing the adoption of CMaaS, particularly in Europe.

As the European Union intensifies its commitment to reducing greenhouse gas emissions and promoting sustainable transport solutions, businesses are increasingly compelled to align their operations with these regulatory frameworks.

The EU has set ambitious targets for carbon neutrality, which necessitate a shift away from traditional car-ownership models towards more sustainable alternatives.

CMaaS facilitates this transition by providing integrated mobility solutions that encourage the use of public transportation, cycling, and shared mobility options, thereby reducing reliance on individual car usage.[12]

Moreover, various European countries have implemented specific laws and initiatives aimed at fostering sustainable mobility practices.[13]

These initiatives not only enhance the attractiveness of MaaS for companies looking to improve their sustainability credentials but also create a conducive environment for the development of new mobility services.

As businesses face increasing pressure from stakeholders - ranging from consumers to investors - to demonstrate their commitment to sustainability, adopting CMaaS becomes a strategic imperative.

By leveraging MaaS solutions, companies can not only comply with regulatory requirements but also enhance their corporate social responsibility (CSR)

[12] MaaS Driving Sustainability Paper
[13] MaaS and governance: a look at Europe

profiles and improve employee satisfaction through more sustainable commuting options. Ultimately, the convergence of sustainability goals and regulatory frameworks is driving a paradigm shift in corporate mobility strategies across Europe, positioning CMaaS as a key enabler of sustainable urban transport.

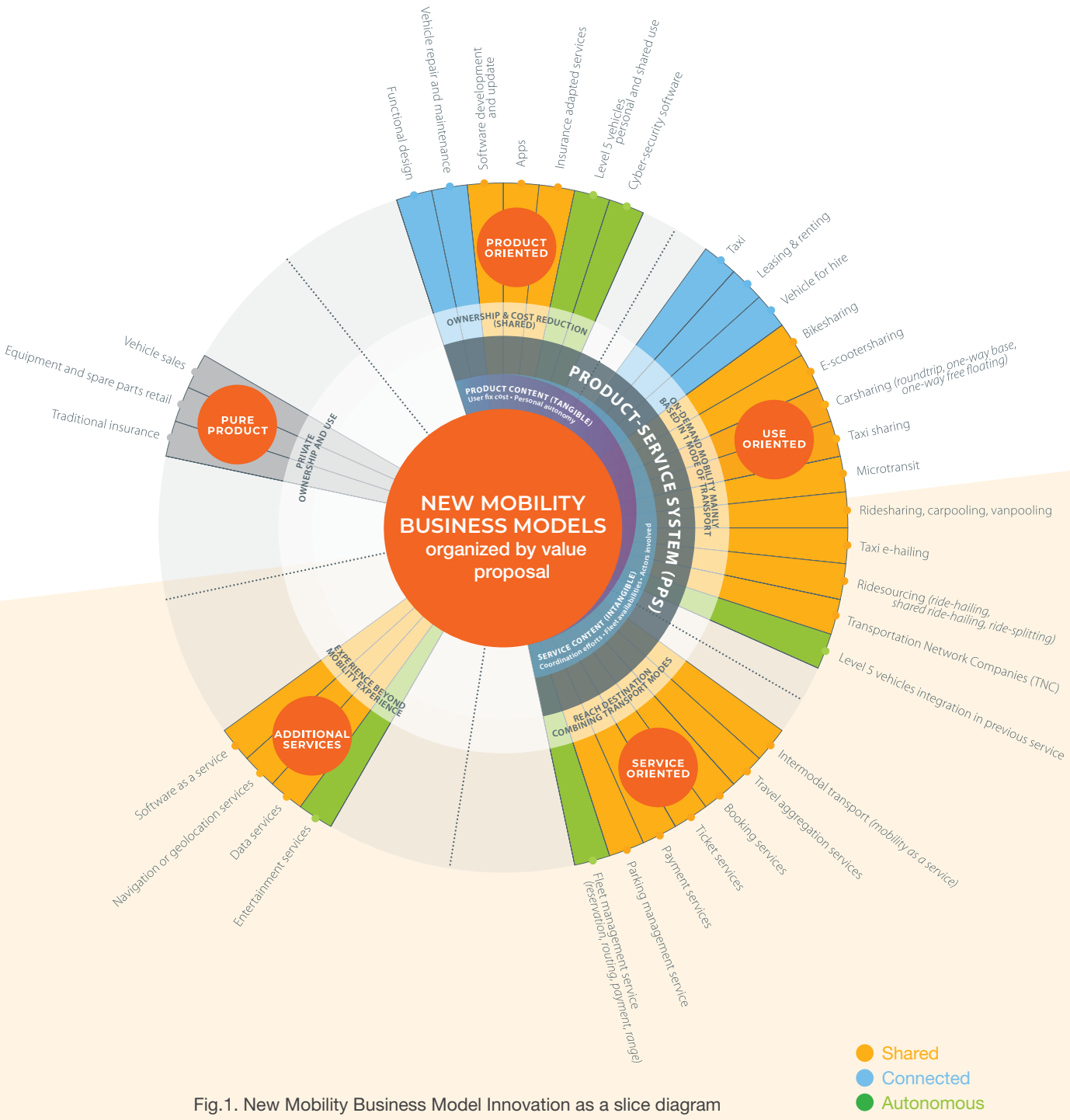


Fig.1. New Mobility Business Model Innovation as a slice diagram

[14] "Cabanelas, P., Parkhurst, G., Thomopoulos, N., Lampon J. (2023) A Dynamic Capability evaluation of emerging business models for new mobility, Research in Transportation Business & Management, 100964,"

Urbanization and traffic congestion

As cities across the continent experience rapid population growth, the resulting increase in vehicle ownership and usage has led to significant traffic congestion, negatively impacting air quality and overall urban liveability.[15]

In response to these challenges, companies are recognizing the need for integrated mobility solutions that can streamline transportation options for their employees.

CMaaS provides a viable answer by offering a range of mobility services such as public transport, ride-sharing, vehicle rental, and bike-sharing within a single platform, enabling businesses to promote more sustainable commuting practices.

European cities are actively seeking innovative approaches to mitigate congestion and enhance mobility.

By integrating multiple transport options, CMaaS can help reduce reliance on personal vehicles, thereby alleviating traffic congestion and contributing to improved air quality.

In addition to Europe, similar trends are observed in other regions. In the USA, urban areas like Los Angeles and New York are grappling with severe traffic issues, prompting local governments and businesses to explore MaaS solutions as a means to enhance mobility efficiency.

The rise of ride-hailing services and their integration into corporate mobility strategies reflects a growing recognition of the need for flexible transportation options in congested urban environments.

In Asia, rapidly urbanizing cities such as Shanghai are implementing comprehensive MaaS platforms to address transportation challenges. The launch of the Suishenxing app in Shanghai exemplifies how cities can leverage technology to provide seamless access to various modes of transport, helping to mitigate congestion while promoting sustainable commuting practices.

Overall, urbanization and traffic congestion are significant catalysts for the adoption of CMaaS across Europe and beyond.

By embracing integrated mobility solutions, companies can not only enhance employee satisfaction but also contribute to broader efforts aimed at creating more sustainable urban environments.

Technological advancements

The integration of various transportation services into cohesive platforms relies heavily on cutting-edge technologies that enhance user experience and operational efficiency.

All over the world, the proliferation of smartphones, coupled with widespread access to high-speed internet, has enabled the development of sophisticated MaaS applications that provide real-time information, route optimization, and seamless payment solutions. This technological infrastructure is essential for creating a user-friendly experience that encourages commuters to embrace multimodal transport options.

Moreover, innovations in data analytics and artificial intelligence (AI) are transforming how MaaS platforms operate. These technologies allow for predictive analysis of travel patterns, enabling companies to offer personalized mobility solutions tailored to individual user preferences.

For instance, AI can optimize routes based on current traffic conditions and user habits, enhancing the efficiency of commuting and reducing overall travel times.

Overall, technological advancements play a pivotal role in shaping the CMaaS landscape across Europe and beyond. By harnessing innovative technologies, companies can deliver more efficient, flexible, and user-centric mobility solutions that meet the evolving needs of commuters in an increasingly urbanized world.

[15] Mobility as a Service Market (2024-2029)

Changing consumer preferences

As consumers become more conscious of their mobility choices, there is a growing demand for flexible, convenient, and sustainable transportation options.

European employees increasingly prioritize mobility solutions that align with their values, particularly regarding environmental sustainability, cost- and time-effectiveness. This shift is reflected in the rising interest in multimodal transport options that integrate public transit, cycling, and shared mobility services within a single platform. According to a 2024 rail user survey in the UK, the travel experience of rail users could be enhanced if an integrated Park & Ride (54%) ticket or a unified app service (59%) including all travel tickets (e.g. train, bus, car park) such as Mobility-as-a-Service (MaaS) were offered.

Moreover, the impact of the COVID-19 pandemic has accelerated changes in commuting habits, with many employees now favoring remote work and hybrid models. As a result, companies are compelled to adapt their mobility strategies to accommodate these evolving preferences. Employees seek solutions that offer greater flexibility in travel times and modes, making CMaaS an attractive option for businesses looking to enhance employee satisfaction and productivity.[16]

For example, the Horizon Europe R-Map project is focusing on impacts at local and regional level. Interviews conducted in 2024 with 31 managers and employees across Europe about socio-economic impacts highlighted that changes in travel patterns have been a key benefit and challenge of remote working arrangements within public and private workplaces.[17] CMaaS is a promising option to consider, depending on the local and regional transport options available.

In addition to sustainability, there is a notable trend among European consumers towards personalization and convenience. Many individuals are willing to pay a premium for services that provide tailored experiences and ease of use. This trend is driving companies to explore innovative MaaS solutions that cater to diverse commuting needs while ensuring a seamless user experience. Similar trends are emerging globally. In the USA, for instance, younger generations are increasingly favoring on-demand transportation services over traditional car ownership, reflecting a broader shift towards convenience and flexibility.

In Asia, urban populations are rapidly adopting shared mobility solutions as cities grapple with congestion and pollution challenges, further emphasizing the need for integrated mobility services that meet changing consumer demands.

Governance initiatives and support

Recognizing the need for sustainable urban mobility solutions, European governments have implemented various policies and frameworks aimed at promoting integrated transport systems. These initiatives are designed to facilitate the transition from traditional car-ownership models to more sustainable, multimodal transportation options that align with broader environmental goals.

In recent years, the European Union has prioritized MaaS as part of its broader strategy to enhance urban mobility and reduce carbon emissions. The EU has established funding programs and regulatory frameworks that encourage member states to develop MaaS solutions.

For example, the European Commission has been actively promoting the concept of a multimodal journey planner, which enables users to access various transport modes seamlessly. This initiative not only supports the development of MaaS but also fosters collaboration between public transport operators and private mobility service providers.
At the national level, countries like Finland have set a precedent for MaaS implementation through comprehensive legislation. The Finnish Act on Transport Services unifies transport-related laws and mandates the interoperability of data among service providers. This legal framework has facilitated the launch of MaaS platforms, such

[16] Thomopoulos, Guragain, Hagen-Zanker, 2024, Windsor Strategic Station Plan: Rail Passenger Survey, Report, Guildford: University of Surrey
[17] R-Map Deliverable 1.4

as Whim in Helsinki, which integrates multiple transport options into a single user-friendly application.

Similarly, Italy's Law on Mobility Manager mentioned in chapter 3, represents a significant step towards supporting innovative mobility solutions.

In addition to legislative support, many European cities are launching pilot projects to test MaaS concepts in real-world settings. For instance, cities like Amsterdam and Vienna have initiated trials that bring together various transport modes under a unified MaaS framework, allowing for valuable insights into user behavior and preferences.
In Italy, a special initiative worth mentioning is MaaSforItaly.[18] This initiative is part of Italy's broader "National Recovery and Resilience Plan" (Piano Nazionale di Ripresa e Resilienza - PNRR), which allocates significant funding of €40 million, plus an additional €16.9 million from the Complementary Fund to enhance digitalization and innovation in public transport.

The project aims to create a more integrated and accessible mobility system by leveraging digital technologies, thereby promoting sustainable transport solutions across various urban areas.
As part of the MaaS for Italy initiative, cities such as Turin and Bolzano have been selected to pilot CMaaS solutions. These pilot projects will test the integration of multiple transport modes and assess the effectiveness of MaaS in meeting the mobility needs of businesses and their employees.
The Italian government has also established a framework for providing incentives to encourage participation in these initiatives. For instance, users participating in the MaaS trials can benefit from financial incentives such as welcome bonuses for registering on MaaS platforms and monthly cashbacks for travel purchases, making it more attractive for people and companies to adopt these services.

Moreover, local governments are playing an active role in regulating and promoting MaaS.
Overall, government initiatives like MaaS for Italy provide essential support for the growth of CMaaS by establishing regulatory frameworks, offering financial incentives, and facilitating pilot projects that demonstrate the benefits of integrated mobility solutions. As these initiatives unfold, they are expected to significantly enhance urban mobility across Italy while contributing to broader sustainability goals.

Government initiatives and support are essential for creating an enabling environment for CMaaS in Europe. By providing regulatory frameworks, funding opportunities, and fostering collaboration among stakeholders, governments can facilitate the growth of integrated mobility solutions that enhance urban transportation efficiency while promoting sustainability. As these initiatives continue to evolve, they will play a pivotal role in shaping the future of mobility across European cities.

[18] Mobility as a Service for Italy

6 Motivations, goals, and benefits

Before highlighting the motivation, goals and benefits to adopt a CMaaS "CMaaS", we need to remind ourselves of its definition. CMaaS refers to a MaaS solution implemented in a corporate setting. It means thus an internal multimodal transport offer, on the site and/or to and from the worksite designed for the employees.

Why is CMaaS interesting? What are the motivations to adopt one?

A first motivation to adopt a CMaaS, which can be highlighted is the attractiveness of such an offer for the employees, and thus of a company. CMaaS aims to make travelling to and from the workplace seamless and more efficient for the employees. A CMaaS solution can offer the mobility services that are the most adapted for employees and can have a positive impact on the perceived accessibility for work-related travel. This is even more important for companies located in suburbs with accessibility issues. In addition to that, they can be seen as part of a benefit package. Indeed, this transport opportunity is not always only limited to work-travel and can thus be extended to leisure journeys. In a Swedish case-study, "respondents showed high expectations for the services and the satisfaction rate was 75% for those who experienced the services".[19] Moreover, for the employer, implementing a MaaS solution could also go hand in hand with fiscal benefits.

A second motivation is the improvement of the image of a company by contributing to its sustainability strategy. Shared mobility services have the potential to reduce vehicle use, congestion, and CO_2 emissions.[20] MaaS solutions are expected to offer a bundled service of different shared modes of transportation. Hence MaaS will contribute to the increased use of shared modes[21].

As CMaaS contributes to a decrease of congestion and CO_2 emission by suggesting more multimodal, shared and sustainable transport solutions, it can contribute to the sustainability strategies of companies. In addition to that, Becker et al. (2020) found out that a "less biased mode choice through the usage of MaaS would lead to both reduced energy consumption and increased energy efficiency".[22] Hence, this contributes to the improvement of a company's external image. A study that was run regarding a CMaaS in Sweden has shown that "efforts invested in the CMaaS system were highly important as part of executing

[19] Xiaoyun Zhao, Bhavana Vaddadi, Martin Sjöman, Mia Hesselgren, Anna Pernestål, Key barriers in MaaS development and implementation: Lessons learned from testing CMaaS "CMaaS", Transportation Research Interdisciplinary Perspectives, Volume 8, 2020, 100227, p.4

[20] Fishman et al., 2014 in Hesselgren, Mia; Sjöman, Martin; Pernestål, Anna . (2019). Understanding user practices in mobility service systems: Results from studying large scale CMaaS in practice. Travel Behaviour and Society, p.1.

[21] Ho et al., 2018 in Hesselgren, Mia; Sjöman, Martin; Pernestål, Anna (2019). Understanding user practices in mobility service systems: Results from studying large scale CMaaS in practice. Travel Behaviour and Society, p.1.

[22] Becker et al., 2020 in Klopfer, A., Frank, L., & Walther, G. (2023). Quantifying emission and cost reduction potentials of Corporate Mobility as a Service. Transportation Research Part D: Transport and Environment, 125, p. 2.

the company vision to strive towards more sustainable transport. Employees were proud of their employer leading the way, and appreciated the development and shared responsibilities".[23] In the same case-study, "21% of respondents claimed they may shift from private car use to CMaaS services if good incentives were provided by the company. This could contribute to reducing CO_2 emissions".[24]

With the EU's Corporate Sustainability Reporting Directive (CSRD) sustainability in mobility is becoming increasingly important. The CSRD requires companies with more than 500 employees as well as listed companies to report all mobility emissions, including commuting. As a result, large companies are increasingly switching to e-mobility while downsizing their vehicle fleets simultaneously.

A third motivation that should be underlined is that a CMaaS will contribute to the reduction of necessary infrastructure for companies. A company which only gives the choice between public transport and private car, needs to foresee several parking spots for the employees coming by car. In the situation where the company offers a CMaaS solution, it is expected that employees will have a reduced usage of their car, as a multimodal and shared mobility solution may be preferred. Hence, for the companies, it means less investments in car parking spaces and spots, but also more investments in bike shelters. It also meets societal objectives as by offering sustainable transport solutions that are accessible, attractive and effective, companies contribute to the reduction of car use in order to release space and reduce congestion.[25]

A fourth motivation would lay in the financial benefits a company can gain from introducing a CMaaS. Klopfer, A., Frank, L., & Walther, G. (2023) underlined that CMaaS systems decrease costs when compared to traditional fleet management.[26]

In the case of Corporate Travel (business trips) the expected cost reduction related to business travel in combination with the increase of employee productivity time are strong arguments for employers' CFO's.

Finally, Vaddadi et al. (2020) underline that CMaaS can bring mutual benefits both on company level and societal level. Indeed, they contribute to the reduction of congestion and CO_2 emissions, but they also have an impact on job opportunities, economic growth and social welfare.[27] Therefore they argue that decision-makers should elaborate policies that "facilitate the implementation of CMaaS systems".[28] Those policies could take the shape of fiscal benefits or subsidies.

[23] Hesselgren, M., Sjöman, M., Pernestål, A. (2019). Understanding user practices in mobility service systems: Results from studying large scale CMaaS in practice. Travel Behaviour and Society, p.8.
[24] Zhao X., Vaddadi, B., Sjöman, M., Hesselgren, M., Pernestå, (2020) A.I, Key barriers in MaaS development and implementation: Lessons learned from testing CMaaS "CMaaS", Transportation Research Interdisciplinary Perspectives, Volume 8, p.4.
[25] Zhao X., Vaddadi, B., Sjöman, M., Hesselgren, M., Pernestå, (2020) A.I, Key barriers in MaaS development and implementation: Lessons learned from testing CMaaS "CMaaS", Transportation Research Interdisciplinary Perspectives, Volume 8, p.2.
[26] Klopfer, A., Frank, L., & Walther, G. (2023). Quantifying emission and cost reduction potentials of Corporate Mobility as a Service. Transportation Research Part D: Transport and Environment, 125, p.14-15.
[27] Vaddadi, B., Zhao, X., Susilo, Y., & Pernestål, A. (2020). Measuring system-level impacts of corporate mobility as a service "CMaaS" based on empirical evidence. Sustainability, 12(17), p.11.
[28] Klopfer, A., Frank, L., & Walther, G. (2023). Quantifying emission and cost reduction potentials of Corporate Mobility as a Service. Transportation Research Part D: Transport and Environment, 125, p.15

7 Models for CMaaS

CMaaS (Corporate Mobility as a Service) models are designed to provide companies with flexible, efficient, and sustainable mobility solutions for their employees. These models typically integrate multiple transport modes into a single platform, allowing businesses to manage and optimise employee travel more effectively. Some of key (or emerging) models for CMaaS include:

1. Subscription-Based Models

Overview: Companies subscribe to a MaaS platform that provides employees with access to various transport modes, such as public transit, bike-sharing, car-sharing, car rental, and ride-hailing services.

Example: Employees receive a mobility budget, which they can use across different transportation services via a single app. This model is popular for its flexibility and ease of integration into existing corporate structures.

2. Pay-Per-Use Models

Overview: This model allows companies to pay only for the transportation services that their employees use, making it cost-effective for businesses with variable mobility needs.

Example: Companies offer mobility solutions where businesses pay based on actual usage, which can include public transportation, car rentals, and shared vehicles. This model is particularly useful for organisations with fluctuating travel demands.

3. Corporate Fleet Integration

Overview: This model integrates a company's existing vehicle fleet with MaaS services, allowing for the management and optimization of both corporate and public as well as shared transport options through a single platform.

Example: Businesses may combine their fleet management with MaaS solutions, offering employees access to both corporate vehicles and shared mobility options like car-sharing and bike-sharing, all managed through one interface.

4. All-Inclusive Corporate Mobility Platforms

Overview: These platforms provide a comprehensive solution that includes a wide range of transport options, travel management tools, and data analytics to optimise employee travel.

Example: These platforms offer an integrated solution that includes route planning, ticketing, and expense management. This model helps companies to streamline operations and improve cost efficiency.

5. Public-Private Partnerships (PPP)

Overview: In this model, companies partner with public transport providers to offer tailored MaaS solutions for their employees, often involving subsidies or discounts on public transport.

Example: A company might collaborate with local transit authorities to offer discounted or even free public transport passes to employees, integrated into a broader MaaS platform that includes other mobility services.

6. In-House MaaS Platforms

Overview: Larger corporations may develop their own MaaS platforms tailored to their specific needs, integrating both internal and external mobility services.

Example: Several large companies have developed in-house solutions that provide employees with access to a range of mobility options, from shuttle services to bike-sharing, all managed through a proprietary platform.

7. Customizable Mobility Packages

Overview: These packages allow companies to tailor MaaS offerings to the specific needs of their employees, including customised routes, preferred transport modes, and specific service providers.

Example: A company might create a mobility package that includes a combination of car rentals, bike-sharing, and public transport, tailored to the needs of employees in different locations.

These CMaaS models cater to diverse business needs, offering flexibility, cost efficiency, and enhanced employee satisfaction. Companies can choose or combine these models depending on their size, location, and specific mobility requirements, allowing for a tailored approach to corporate mobility.

8 Delivery challenges and strategies

In implementing Corporate Mobility as a Service "CMaaS", corporations face a variety of challenges across legal, tax, technical, commercial, and marketing domains. Below, we explore these challenges and offer strategic insights for overcoming them:

Legal Challenges

Data Privacy and Security: With CMaaS platforms collecting significant amounts of data, ensuring compliance with data protection regulations like GDPR is crucial.[29] Companies must establish robust data management policies and implement stringent security measures to protect user information.

Regulatory Compliance: Navigating the complex legal landscape of transportation regulations across different regions can be daunting. It is essential to engage with legal experts to ensure compliance with local and international laws governing mobility services.

Company Travel Guidelines: The recommended travel options and related costs need to be framed in the corporate travel guidelines.

Tax Challenges

Taxation on Benefits: The provision of mobility budgets or (some parts of the) services may be classified as taxable benefits in some jurisdictions. Companies need to understand the tax implications and work with tax advisors to optimize the financial structure of their CMaaS offerings.

Cross-Border Taxation: For multinational companies, varying tax regulations across countries can complicate the implementation of a unified CMaaS strategy.

An example can be found by the Horizon Europe R-Map D1.4, which focused on the socio-economic impacts through a cross-border case between Germany and the Netherlands. Developing a comprehensive tax strategy that addresses these differences is key.

[29] This has been found to be an important factor for a proportion of users in various countries (Ekpo, O., Casola, V., Benedictis, A, 2024, Security and privacy issues in Mobility as a Service (MaaS): A systematic review, 19th Annual System of Systems Engineering Conference IEEE, pp. 300-307; Cottrill, C. , 2020, MaaS surveillance: Privacy considerations in Mobility as a Service, Transportation Research Part A: Policy and Practive, 131, pp. 50-57; Costantini et al., 2020, Autonomous Vehicles in a GDPR era: An international comparison - Chapter 8. In Milakis et al. (Eds.) Policy Implications of Autonomous Vehicles, Vol.5, pp. 191-213, Oxford: Elsevier - Academic Press).

Technical Challenges

Integration with Existing Systems: Integrating CMaaS platforms with existing corporate systems such as HR and expense management can be technically challenging. Selecting interoperable solutions and planning for seamless integration is vital. Integration with the Public Transport Operators/ Mobility Service Providers: The MaaS backend system needs to be integrated with the multiple Transport Operators, public and private operators. Various suppliers in the market have already proven in operational projects that this technical hurdle is most likely the lowest one realizing a CMaaS project.

Scalability and Reliability: Ensuring that the CMaaS platform can scale with company growth and provide reliable service during peak usage times requires careful planning and investment in robust infrastructure.

Commercial Challenges

In the CMaaS ecosystem, stakeholders often operate under diverse missions and mandates. For instance, while companies typically focus on profit-driven goals, public transport operators prioritize non-profit objectives. Aligning these differing aims can be challenging, but it is certainly achievable.

Non-profit strategic objectives such as key performance indicators (KPIs) related to sustainability, CO_2 reduction, and promoting modal shifts can create significant benefits for all stakeholders involved. By fostering collaboration and understanding, each participant can find common ground.

To ensure a successful partnership, every stakeholder must align their objectives with either a business case focused on return on investment (ROI) or a value case centered on achieving strategic KPIs. This alignment not only enhances cooperation but also drives overall progress within the ecosystem, benefiting both profit-driven companies and public transport operators alike.

Marketing Challenges

- **Employee Engagement:** Encouraging employee adoption of CMaaS requires effective communication and incentives. Companies should develop targeted marketing campaigns that highlight the benefits and ease of use of the service.

- **Brand Positioning:** Positioning CMaaS as part of the company's sustainability and employee well-being initiatives can enhance brand image. Clear messaging and alignment with corporate values are crucial for successful positioning.

Strategies for Overcoming Challenges

- **Collaborative Partnerships:** Forming alliances with mobility providers, legal experts, and technology partners can help address various challenges by pooling resources and expertise.

- **Pilot Programs:** Implementing pilot programs allows companies to test CMaaS solutions on a smaller scale, gather feedback, and refine the approach before full-scale deployment.

- **Continuous Monitoring and Feedback:** Establishing mechanisms for continuous monitoring and collecting user feedback can help identify issues early and facilitate ongoing improvements.

- **Employee Education and Training:** Providing education and training sessions can help employees understand and embrace the benefits of CMaaS, leading to higher adoption rates. This also has been one of the findings of the H2020 WE-TRANSFORM D4.1 which indicated that Training Skills & Needs and Business Transition are the two most important impact categories across countries and transport modes.

By proactively addressing these challenges with strategic planning and stakeholder collaboration, companies can successfully implement CMaaS and realize its potential benefits.

9 Recommendations, conclusions and next steps

Corporate Mobility as a Service “CMaaS” stands at the forefront of transforming how businesses approach employee mobility. By integrating multimodal transport options into cohesive, technology-driven platforms, CMaaS addresses critical challenges such as urban congestion, environmental impact, and employee satisfaction.

The findings of this paper underscore the substantial benefits of adopting CMaaS, including enhanced operational efficiency, reduced environmental footprint, and compliance with stringent sustainability regulations. Successful implementation, however, requires a deliberate and collaborative approach to overcome legal, technical, and adoption-related hurdles.

The case studies and recommendations presented herein reveal that CMaaS is more than a mobility solution: it is a strategic enabler of broader corporate goals. By adopting CMaaS, companies can enhance their sustainability profiles, streamline travel costs, and provide employees with flexible, future-ready commuting options. As businesses navigate an increasingly urbanized and environmentally conscious world, CMaaS offers a path to resilience, innovation, and competitive advantage.

Next Steps to consider for Stakeholders across industries

Conduct concrete localised Feasibility Studies:

- Assess the specific mobility needs of employees and organizational goals to identify the most suitable CMaaS model.
- Evaluate existing local infrastructure and readiness for seamless integration.

Develop Pilot Projects:

- Launch small-scale CMaaS initiatives inviting all stakeholders to test key functionalities and gather user feedback.
- Monitor pilot outcomes to refine service offerings and address identified challenges.

Foster Cross-Sector Partnerships:

- Collaborate with public transport operators, mobility tech providers, and government bodies to build robust, integrated solutions. Establish a collaborative environment, such as agreements or even legally established Public-Private Partnerships.
- Share insights and best practices across industries to drive collective progress.

Invest in Training and Awareness Campaigns:

- Educate employees on the benefits and usage of CMaaS platforms. Be agile and learn fast.
- Design various incentives to encourage adoption and sustained engagement. Adapt to change, learn from others.

Implement Monitoring Systems:

- Set up data-driven mechanisms to track adoption rates, cost efficiencies, and environmental impacts.
- Use regular insights to continuously optimize CMaaS offerings based on data and facts. Improve where and when necessary.

Align with Regulatory Requirements:

- Stay updated on local and regional sustainability regulations to ensure compliance. Benefit from local incentives and collaborative funding.
- Integrate reporting frameworks to highlight achievements in corporate sustainability goals. Report towards the government, and integrate into the ESG Reporting.

Scale Up Gradually:

- Expand successful pilots to larger departments or locations, scaling efforts based on proven results.
- Adapt strategies to address evolving mobility needs and technological advancements.

Recommendations

Strategic Alignment

- Position CMaaS as a core component of corporate sustainability strategies, ensuring alignment with global and regional environmental goals.
- Leverage incentives such as tax benefits and subsidies to offset implementation costs and drive adoption.

1

Pilot Programs and Feedback Loops

- Initiate pilot projects to test CMaaS models in specific locations or departments. Gather feedback to refine solutions and demonstrate proof of concept before scaling.
- Use insights from pilots, like the Turin initiative, to tailor solutions for diverse corporate settings.

2

Enhanced Employee Engagement

- Implement robust communication campaigns to highlight the benefits of CMaaS.
- Provide training sessions and user-friendly tools to ensure employees understand and effectively use CMaaS platforms.

3

Partnerships and Collaboration

- Collaborate with public and private transport providers, mobility tech firms, and regulatory bodies to create cohesive and integrated solutions.
- Establish cross-industry partnerships to share best practices and jointly address challenges.

4

Technology and Integration

- Invest in scalable, interoperable platforms that integrate seamlessly with existing corporate and people systems, such as HR and expense management tools.
- Leverage advanced analytics and AI to personalize mobility solutions and optimize operational efficiency.

5

Monitoring and Sustainability Reporting

- Regularly monitor key performance indicators, such as employee adoption rates and emission reductions, to assess the impact of CMaaS.
- Incorporate mobility data into sustainability reports to meet compliance requirements and showcase achievements to stakeholders.

6

White Paper

Corporate Mobility as a Service "CMaaS"

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